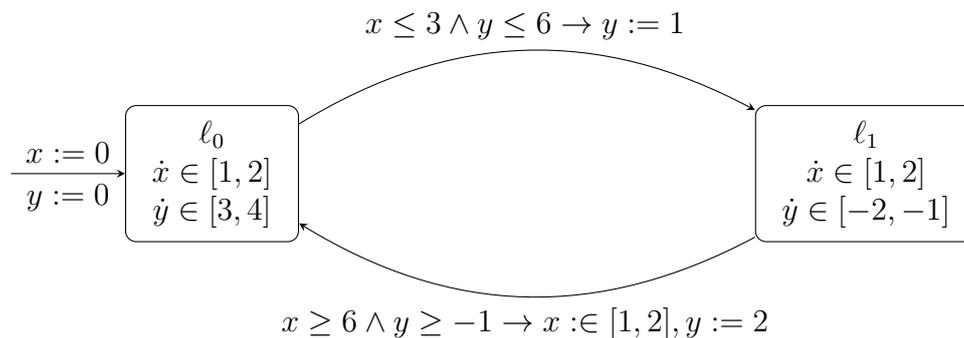


Tutorial for Cyber-Physical Systems - Hybrid Models

Exercise Sheet 7

Exercise 1: Rectangular automaton

Consider the following initialized rectangular automaton \mathcal{H} :



- (a) Construct an initialized singular automaton \mathcal{H}_1 which is equivalent to \mathcal{H} .
- (b) Construct an initialized stopwatch automaton \mathcal{H}_2 which is equivalent to \mathcal{H}_1 .
- (c) Construct a timed automaton \mathcal{H}_3 which is equivalent to \mathcal{H}_2 .

Use the constructions according to the lecture script. Note that *equivalent* here does not mean that the automata have the same behaviors, but that the reachability analysis of one can be used for the reachability analysis of the other.